REMARKS

Applicants, their principal representatives in Germany, and the undersigned have carefully reviewed the first Office Action on the merits of April 10, 2003 in the above-identified U.S. patent application, together with the prior art references cited and relied on by the Examiner in the rejection of the claims. In response, various ones of the claims have been amended, the claims withdrawn from consideration by the Examiner have been cancelled and several additional dependent claims have been added. It is believed that all of the claims now pending in the application are patentable over the prior art cited and relied on by the Examiner. Reexamination and reconsideration of the application, and allowance of the claims is respectfully requested.

The subject invention is directed to a longitudinal folding device that includes a longitudinal folding hopper and an electrically separate paper deflection device. Both the longitudinal folding hopper and the paper deflection device are supported by a machine frame. The paper deflection device is supported by electrically insulating means so that it is electrically insulated from the machine frame.

Referring to Figs. 13 and 14, a plurality of paper webs are fed along a slide plate 11 to a hopper insertion roller 16. The longitudinal folding hopper is located after, in the direction of web travel, the hopper insertion roller 16 and before a pair of hopper folding rollers 26 and 27. As seen most clearly in Fig. 13, the longitudinal folding hopper includes a hopper insertion plate 21 and a pair of hopper flank plates 55 and 65. The transitional areas between the hopper insertion plate 21 and the hopper flank plates 55

and 65 are the hopper flanks 22 and 23.

A paper deflection device or paper guide device is spaced apart from and effectively overlies the longitudinal folding hopper, again as may be seen most clearly in Fig. 13. The paper deflection device includes a pair of guide devices 61 and 62 that are adjacent the hopper flank plates 55 and 65. The paper deflection device also includes a pair of left and right upper cover plates 155 and 165 which merge together to form a continuous hopper cover plate 274. The paper deflection device formed by these elements is connected to a high voltage source 277. It is also supported by the machine frame 117 through the use of suitable electrically insulating devices, which are depicted schematically at 148. When a high voltage is applied to the paper deflection device, it becomes electrically charged. Since it is insulated from its supporting frame, that charge is not dissipated. Also since it is electrically insulated, the paper deflection device will be charged differently from the longitudinal folding hopper. The result is that a paper web that passes between the folding hopper and the paper deflection device will be supported between them because of the charge differential. This will create a smoother, less friction generating passage of the paper web from the insertion roller 16 to the folding rollers 26 and 27.

In the first Office Action on the merits, the Examiner made final his restriction requirement. Claims 13-15 were withdrawn from consideration by the Examiner. Claims 13-15 have now been cancelled in the subject application. Applicants reserve the right to file one or more divisional applications directed to these claims.

Claims 9-12 were rejected under 35 U.S.C. 112, second paragraph as being indefinite. Specifically, the phrase "shell-like" was asserted as rendering the claims indefinite. The term "like" was asserted as including elements not actually disclosed. In response, claim 9 has been amended to delete the term "shell-like." It is believed that claim 9, and the several claims which depend from it comply with 35 U.S.C. 112, second paragraph and that they particularly point out, and distinctly claim the subject matter which applicants regard as their invention.

Claims 9-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over German document No. DE 2 754 179 to Pflaum in view of U.S. patent No. 5,030,193 to Breton. It was asserted that Pflaum shows a longitudinal folding hopper with flanks and with a machine frame supporting a paper deflection device 2, 3. A high voltage source was recited as being connected to the paper deflection device which was asserted as being electrically insulated with respect to the machine frame. The secondary reference to Breton was cited as showing a paper deflection device including the longitudinal folding device. It was alleged that it would be obvious to provide Pflaum with a shell deflection device.

It is respectfully asserted that claim 9, as filed, and even more clearly as amended, is not obvious to one of skill in the art over Pflaum, either by itself or if taken in combination with Breton. In the Pflaum document, in Fig. 1, there are shown a plurality of web sections 1. These pass over web deflection rolls 2 and 3. The rolls 3 impart spaced positive charges to edge portions of selected ones of the web 1. The

rolls 2 impart spaced negative charges to edge portions of other ones of the webs 1. These positive and negative charge regions create adhesion points 9 before the webs pass between a first pair of rollers 4 and 5. It appears that these adhesion points 9 are maintained as the now joined web sections 1 pass between what appear to be cooperating cutting or perforating rollers 7 and 8.

Referring now to Figs. 2, 3 and 4 of Pflaum, there are shown several spaced webs 10, 11, and 12. These individual webs are drawn over spaced rollers 13, 14 and 15. A separate roller 28 is shown in Fig. 3 and includes what are assumed to be electrodes 26 and 27. Electrode 26 is positive while electrode 27 is negative. It is assumed that the three rollers 13, 14 and 15 are the same as the roller 28. A first edge portion 25 of the upper web 10 is provided with a negative charge. A second edge portion 24 of the upper web 10 is provided with a positive charge. It is assumed, but it is not clear that the edges 25 of each of the three webs 10, 11 and 12 are provided with such negative charges. It is also assumed, but it is again not clear, that the edges 24 of the three webs 10, 11 and 12 are provided with positive charges.

The three webs are combined at roller 16 and then pass over a folding funnel 17. The webs are caused to be folded along a longitudinal fold line as they pass between rollers 18 and 19. It is noted that the edge of the web to the right, as viewed in Fig. 2, is denoted with four negative signs. It is inferred that the negative charge imparted to each web edge 25 by the rollers 13, 14 and 15 is thus now a greater cumulative negative charge. It is further assumed that the positive charges applied to the web

edges 24 are also accumulated. The purpose is clearly to generate positive and negative charges on the opposing web sides. This will cause the web sides or edges 24 and 25 to attract as the web is longitudinally folded by the two rollers 18 and 19. Clearly, this operation of the Pflaum device is not the same as, or similar to the subject invention, as recited in amended claim 9.

Contrary to the assertions set forth in the Office Action, the web deflection rolls 2 and 3 or by analogy, the web rolls 13, 14 and 15 of Pflaum are not a paper deflection device that is supported by a machine frame and enclosing a longitudinal folding device. The web deflecting rollers 2 and 3, and the rollers 13, 14 and 15 can be argued as deflecting a paper web because they do change the direction of travel of the web. However, they are not similar in use or structure to the paper deflection device recited in claim 9, as filed and even more clearly as amended. At best, these rollers would be more similar to the rollers 3 and 4 that are shown in Fig. 2 of the subject invention.

There is no machine frame shown or suggested in Figs. 1 and 2 of Pflaum. Clearly, rollers and fold funnels are not supported in air. However, since there are no frames shown or suggested in Pflaum, it is clear that there is no support for the statement in the grounds of rejection that the paper deflection device; i.e. rollers 2 and 3 or 13, 14 and 15 are supported electrically insulated against a machine frame. With respect to claim 11, the rollers 18 and 19 are not shown in Pflaum as being supported from a frame. Thus it is not disclosed that they are electrically insulated from such a non-disclosed frame.

The secondary reference to Breton does not provide the teachings missing from the primary Pflaum reference. Breton shows a folder apparatus for a plurality of sheets. As seen most clearly in Fig. 10, a first fold 72 is formed in a web train 40 by passage over a former board 44. That former board 44 is the equivalent of the longitudinal former of the subject invention. The now longitudinally formed web 40 of Breton is cut into signatures 48. A tucking cylinder 52 cooperates with a jaw cylinder 74 to form a second or transverse fold in each of the individual signatures.

In Figs. 16-18 of Breton there are disclosed portions of a third folder assembly, which is shown initially at Fig. 14. This third folder is located well downstream of the former board 44 and acts to form a third fold line in individual signatures. It is not directed to a paper deflection device enclosing a longitudinal folding device in a shell-like manner.

If the structure of the Breton device were to be somehow combined with the Pflaum device, the result would not be a structure that would be similar to the subject longitudinal folding device, as recited in claim 9. The portion of Breton noted by the Examiner is not part of a longitudinal folding device that receives paper webs. Even if the Breton reference could be construed as teaching or suggesting the use of a paper deflection device enclosing the longitudinal folding device, which it clearly does not, there is no teaching or suggestion in Pflaum that one would apply a charge to it. Pflaum clearly teaches charged rollers that are located well before the fold funnel. The inclusion of a paper deflection device of the type shown in Breton, in a location not

taught or suggested by Breton, would not change the clear teaching of Pflaum that the rollers located upstream of the hopper machine roller 16 are the ones that are provided with electrical charges. Thus, it is believed that claim 9, as filed, and even more clearly as amended, is patentable over the prior art cited and relied on by the Examiner.

Original claims 10-12 and newly added claims 16 and 17 all depend from believed allowable amended claim 9 and are thus also believed to be allowable. Claim 12 has been discussed above. There is no teaching or suggestion in the cited references of the structure recited in claim 10. Pflaum does not, in fact, teach or suggest this structure. Newly added dependent claims 16 and 17 find support in the specification of the application and provide the applicants with the scope of claim protection to which they are believed to be entitled.

The various other references cited by the Examiner in the Office Action, but not applied against the claims, have been reviewed. Since they were not relied on in the rejection of the claims, no discussion thereof is believed to be required.

SUMMARY

Claim 9 has been amended. Claims 13-15 have been cancelled. New claims 16 and 17 have been added. Claims 10-12 have been carried forward. It is believed that all of the claims now pending in the subject patent application are patentable over the prior art cited and relied on by the Examiner, taken either singly or in combination. Allowance of the claims, and passage of the application to issue is respectfully requested.

Respectfully submitted,

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